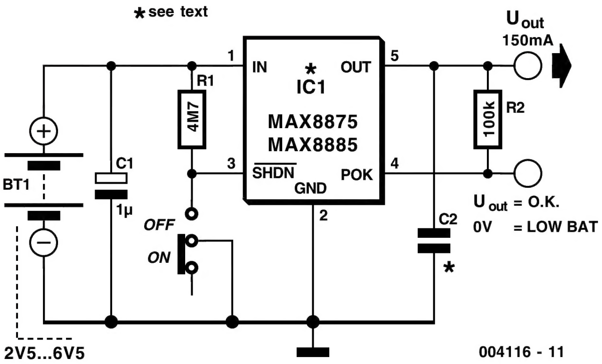
038

150 mA LDO Regulator with Power OK O/P

By G. Kleine

To get maximum battery life from portable equipment, Low Drop Out (LDO) regulators are often used. These devices can supply a well regulated output voltage while having a drop-out voltage (Vin – Vout) of only 100 mV. Battery powered equipment always has a problem when the battery voltage falls and the regulator can no longer maintain its designed output voltage. Operation of the circuit becomes unreliable and data can be lost. A solution to this problem is provided by the new LDO regulator from Maxim, the MAX 8875/8885. This chip has a power-OK output; it indicates when the output voltage has fallen to below (typically) 5% of the regulated voltage. This is useful, for example in processor applications, so that data can be safely stored in a non-volatile environment before the voltage drops further and the system dies completely.



The MAX 8875/8885 is a fixed voltage regulator with outputs of +2.5 V, +2.7 V, +3.0 V, +3.3 V or +5.0 V. Each have a guaranteed output current of 150 mA and a typical drop out voltage of 110 mV at a supply current of 100 mA. The input voltage range is from +2.5 V to +6.5 V. The chip has built-in protection against output short circuit and over temperature. Also useful for portable equipment is the accidental battery reversal (up to 7 V) protection. A shutdown pin is also provided and grounding this will turn off the regulator and its supply current will fall to less than 1 μA.

Device	**V_{out}**	**Identification**	
		MAX8875	**MAX8885**
MAX 88x5EUK25	2.5 V	ADKZ	ADLE
MAX 88x5EUK27	2.7 V	ADLA	ADLF
MAX 88x5EUK30	3.0 V	ADLB	ADLG
MAX 88x5EUK33	3.3 V	ADLC	ADLH
MAX 88x5EUK50	5.0 V	ADLD	ADLJ

The stability of the regulator is largely dependent on the type of output capacitor (C2) used. The 8875 is designed to be used with a ceramic output capacitor (optimally 1μF), while the 8885 is suitable for more economical capacitors with a higher ESR (Effective Series Resistance) such as tantalum. The recommended value of output capacitor here is from 1 – 4.7 μF.

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